

H. Gilbert Weil 163 Candlewick Lane Bridgewater, N.J. 08807

May 12, 1989

Ms. Janet Feldstein U.S. EPA Region II Site Compliance Branch 26 Federal Plaza, Room 747 New York, N.Y. 10278

Dear Janet:

Attached is the analytical information obtained from the 12 soil grab samples taken at your request at the SCP Carlstadt Site by ERM. Please call me if you have questions.

Very truly yours,

H. G. Weil

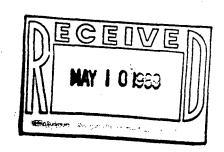
HGW/smd/446+ Attachment

Environmental Resources Management, inc.

855 Springdale Drive • Exton, Pennsylvania 19341 • (215) 524-3500 • Telex 4900009249

27 April 1989

Mr. H. Gilbert Weil Union Carbide Corporation One River Road Bound Brook, New Jersey 08807



FILE: 802-01-10-01

Dear Gil:

At EPA's request, 12 grab samples were taken at the SCP site during the field sampling conducted by ERM. The samples and a duplicate were analyzed for EP Toxicity by CompuChem Laboratories. Table 1 presents the results for the samples and duplicates, and the locations from which they were taken. For comparison purposes, the maximum permitted concentrations before a waste is labeled hazardous are provided in Table 1. Also enclosed are the lab reports for this work, in the event that EPA requests this documentation.

If you have any questions or comments, please contact me.

Sincerely,

Marian E. Donovan Carlin Carlin

Project Manager

MEDC/sw

cc:

W. Warren

S. Hoffman

R. Fender

004268

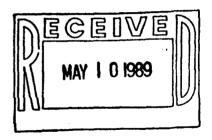


お食 毎ま"

EP Toxicity Test Results from Grab Samples at SCP-Carlstadt Site

Sample Number	Sample Location	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury
14924	B-6	2.4U	[29]	4.0U ′	[7.9]	6.6	7.0U	5.5U	0.2U
14925	B-1	33	[68]	4.0U	6.3U	0.45U	11	5.5U	0.20
14926	B-2 ,	12	371	29	211	1150	7.00	5.5U .	8.0
14927	B-3	21	[127]	8.1	30	429	7.0U	5.5U	0.45
14928	B-4	[5.5]	[106]	[4.0]	[8.1]	83	15	5.5U	0.2U
14929	B-5	33	[145]	4.0U	6.3U	[2.0]	7.00	5.5บ	0.2U
14930	P-2	12	[16]	4.0U	[9.0]	18	7.0U	5.5U	0.2U
14931	P-3	11	[122]	4.0U	6.3U	57	8.6	5.5U	0.2U
14932	P-4	2.4U	[35]	4.0U	6.3U	3 0	7.0U	5.5U	0.20
14933	MW-5D	12ບ	[19]	4.0U	6.3U	15	7.0U	5.5U	5.9
14934	MW-3S		•						
14935	MW-6S	14	[45]	4.0U	23	47	7.0U	5.5U	6.8
14937	B-5 Dupl	30	[146]	5.4	6.3U	0.45U	7.0U	5.5U	0.2U
Max Conc (mg/L)		5.0	100.0	1.0	5.0	5.0	1.0	5.0	0.2
Instr Det Lim (ug/L)	it	48	0.85	4.3	5.0	39	67	4.3	0.11

U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit
[] = Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit
Samples tested by CompuChem Laboratories for E. P. Toxicity Leachate RCRA/SDWA Metals on 2/7/89



€04267





February 16, 1989

Ms. Susan Barry ERM, Inc. 855 Springdale Drive Exton, PA 19341

Dear Ms. Barry:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID Number	Our ID Number	Analysis Code	Order Number	Description of Work Requested
14925 14927 14928 14929 14930 14931	243138 243140 243141 243142 243143 243144	045,642	16110	E.P. Toxicity Leachate RCRA/SDWA Metals
14932 14933 14935 14937	243145 243146 243148 243149	·		

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

RECEIVED

Sincerely,

FEB 20 1989

A. Bush

ERM

Mary E. Mitchell
Supervisor, Report Deliverables

cc: Accounting

nn4268

Date Completed: 2/ 7/89

CompuChem#: 243138

Water XXX

Solids

SAMPLE ID: 14925

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	33
0114	Barium, total(P)	[68]
0103	Beryllium, total()	
0129	Calcium, total()	
0104	Cadmium, total(P)	4.00
0120	Cobalt, total()	
0105	Chromium, total(P)	6.30
0106 ⁻	Copper,total()	
0115	<pre>Iron,total()</pre>	
0107	Lead, total(F)	0.450
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	11
0111	Silver,total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
0108	Mercury, total(CV)	0.20

P = Inductively Coupled Plasma (Method 6010) A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)

F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)

CV= Cold Vapor (Method 7471)

U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit

^{[] =} Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

30° 1 1 1

Date Completed: 2/ 7/89

CompuChem#: 243140

Solids

Water XXX

SAMPLE ID: 14927

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	21
0114	Barium, total(P)	[127]
0103	<pre>Beryllium, total()</pre>	
0129	Calcium, total()	
0104	Cadmium, total(P)	8.1
0120	Cobalt, total()	
0105	Chromium, total(P)	30
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(P)	429
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	7.00
0111	Silver, total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total)	
0108	Mercury, total(CV)	0.45

P = Inductively Coupled Plasma (Method 6010)

A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)

F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)

CV- Cold Vapor (Method 7471)

U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit

^{[] =} Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

CompuChem#: 243141 Date Completed: 2/ 7/89

Water XXX Solids

SAMPLE ID: 14928

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	[5.5]
0114	Barium, total(P)	[106]
0103	<pre>Beryllium, total()</pre>	<u>- </u>
0129	Calcium, total()	
0104	Cadmium, total(P)	[4.0]
0120	Cobalt, total()	
0105	Chromium, total(P)	[8.1]
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	83
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	15
0111	Silver, total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
0108	Mercury, total(CV)	0.200

- P = Inductively Coupled Plasma (Method 6010)
- A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)
- F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)
- CV= Cold Vapor (Method 7471)
- U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit
- [] = Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

CompuChem#: 243142 Date Completed: 2/ 7/89

Water XXX Solids

SAMPLE ID: 14929

CompuChem Compound #	Compound Name	Result (circle one (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	33
0114	Barium, total(P)	[145]
0103	Beryllium, total()	
0129	Calcium, total()	
0104	Cadmium, total(P)	4.00
0120	Cobalt, total()	
0105	Chromium, total(P)	6.30
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	[2.0]
0121	Magnesium, total()	
0116	Manganese, total()	-
0109	Nickel, total()	·
0131	Potassium, total()	
0110	Selenium, total(F)	7.00
0111	Silver, total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
V 223		
0108	Mercury, total(CV)	0.200

- P = Inductively Coupled Plasma (Method 6010)
- A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)
- F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)
- CV= Cold Vapor (Method 7471)
- U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit
- [] = Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

Date Completed: 2/ 7/89

CompuChem#: 243143

Water XXX Solids

SAMPLE ID: 14930

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	12
0114	Barium, total(P)	[16]
0103	Beryllium, total()	
0129	Calcium, total()	
0104	Cadmium, total(P)	4.00
0120	Cobalt, total()	
0105	Chromium, total(P)	[9.0]
0106	Copper,total()	
0115	<pre>Iron,total()</pre>	
0107	Lead, total(F)	18
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel,total()	
0131	<pre>Potassium,total()</pre>	
0110	Selenium, total(F)	7.00
0111	Silver, total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	·
0113	Zinc,total()	

- P = Inductively Coupled Plasma (Method 6010)
- A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)
- F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)
- CV= Cold Vapor (Method 7471)
- U = Compound was analyzed for but not detected. Total reported
 is the Instrument Detection Limit
- [] = Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

Date Completed: 2/ 7/89

CompuChem#: 243144

Water XXX

Solids

SAMPLE ID: 14931

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	11
0114	Barium, total(P)	[122]
0103	Beryllium, total()	
0129	Calcium, total()	
0104	Cadmium, total(P)	4.00
0120	Cobalt, total()	
0105	Chromium, total(P)	6.30
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	57
0121	Magnesium, total()	·
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	8.6
0111	Silver, total(P)	5.5U
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
0108	Mercury, total(CV)	0.20U

P = Inductively Coupled Plasma (Method 6010)

A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)

F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)

CV= Cold Vapor (Method 7471)

U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit

^{[]=} Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

Date Completed: 2/ 7/89

CompuChem#: 243145

Water XXX Solids

SAMPLE ID: 14932

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	2.40
0114	Barium, total(P)	[35]
0103	Beryllium, total()	
0129	Calcium, total()	· · · · · · · · · · · · · · · · · · ·
0104	Cadmium, total(P)	4.0U
0120	Cobalt, total()	
0105	Chromium, total(P)	6.30
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	30
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	7.0 u
0111	Silver,total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total	
0108	Mercury,total(CV)	0.200

P = Inductively Coupled Plasma (Method 6010)

A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)

F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)

CV= Cold Vapor (Method 7471)

U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit

^{[]=} Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

Date Completed: 2/ 7/89

CompuChem#: 243146

Water XXX

Solids

SAMPLE ID: 14933

CompuChem Compound #	Compound Name	Result (circle one (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	120
0114	Barium, total(P)	[19]
0103	Beryllium, total()	
0129	Calcium, total()	
0104	Cadmium, total(P)	4.00
0120	Cobalt, total()	
0105	Chromium, total(P)	6.30
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	15
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	7.00
0111	Silver, total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
-		
0108	Mercury, total(CV)	5.9

P = Inductively Coupled Plasma (Method 6010)

A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)

F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)

CV= Cold Vapor (Method 7471)

U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit

^{[]=} Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

Date Completed: 2/ 7/89

CompuChem#: 243148

Water XXX

Solids

SAMPLE ID: 14935

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	14
0114	Barium, total(P)	[45]
0103	Beryllium, total()	
0129	Calcium, total()	
0104	Cadmium, total(P)	4.00
0120	Cobalt, total()	
0105	Chromium, total(P)	23
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	47
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	7.00
0111	Silver, total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
V & & J		
0108	Mercury, total(CV)	6.8

- P = Inductively Coupled Plasma (Method 6010)
- A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)
- F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)
- CV= Cold Vapor (Method 7471)
- U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit
- []= Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

Date Completed: 2/ 7/89

CompuChem#: 243149

Water XXX

Solids

SAMPLE ID: 14937

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	30
0114	Barium, total(P)	[146]
0103	Beryllium, total()	
0129	Calcium, total()	
- 0104	Cadmium, total(P)	5.4
0120	Cobalt, total()	
0105	Chromium, total(P)	6.30
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	0.450
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	7.00
0111	Silver, total(P)	5.5 0
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
0108	Mercury, total(CV)	0.20U

- P = Inductively Coupled Plasma (Method 6010)
 A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)
 F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)
- CV= Cold Vapor (Method 7471)
- U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit
- [] = Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

QUALITY CONTROL SUMMARY

RCRA/SDWA METALS

	NUMBER	ACCEPTANCE CRITERIA
Blank	243395	OK
Duplicate	242251	· 0K
Blank Spike	242250	OK

ASSOCIATED SAMPLES

SAMPLE IDENTIFIERS	COMPUCHEM NUMBERS
14925	243138
14927	243140
14928	243141
14929	243142
14930	243143
14931	243144
14932	243145
14933	243146
14935	243148
14937	243149



Sample Chain of Cust

W.O.No.:	d . c . :		Prole	ct Name		······································		1		7	(/	. /	7	/ / /2 : // /
Sampler:	80201 SA	, F.H	<u> </u>		SCP	Ρ			Number 0					Received in good Condition K.O. 1/289
ERM Sample Number	Date .	Time	C O M P	G R A B	Samp	le Location	<u>'</u>	Contai	1	\ `` \		//	//	Remarks ((N#5)
14925	11-27-89	1700	<u> </u>	V	·B.	-/		1	1					243138
J4126	/1	,,		V	ß-	2		1	1					243139
14927	,,	71		V	B	3		1	1					1243140
)4928	11	.,		V	B	~4	—	,	1					243141
14929	,,	"		V	B	.5		1	1					243142
14930	"	11		V	<i>f</i>	·P-2		1	1				-	243143
14931	11	٠,		V	f	- 3		1	1			-		243144
14932	"1"	P)		V		0-4		1	,					243145
14433	n	V		V	Mu	1-5D		1	1					243/46
14134	11	•	-	V	Mu	-3 5		1	1					243147
Sample	e Relinqu	ished		Date	Time	Sample R	leceive	i by:		Date		Time		Reason for Transfer
Ed	9 Sull	m	1-:	27- 6 7	2000	Kevin (2/2	W4	1/20	pe	0	850		
280						J -							Al CI	Saryles were physical ceived in 1/26/09, of received on constitution of the constitution of the constitution of request backdafeng Ku 1/

COPIES: White & Yellow copies accompany sample shipment to laboratory. Yellow copy retained by laboratory. White copy to be returned to ERM for files. Pink copy retained by sampler. Gold copy extra copy as needed (ware



Project W.O.	80201	2 Sample Co	oncentration	14925	CCNH 243138
Project Name/Loca	ation	Low C	oncentration		243138
SCP		☐ Mediu	n Concentration	3 Ship to:	
Carlstadt	LN,	5 Sampling	Personnel Contact	Comp	uchem
4 Sample Matri	x	Sampler: F.	₩.	·	
☐ Liquid			- Carlin		
☐ Other		Phone No. (215)	524-3500	Attn: Nath	in Frank
6 Shipping Info	rmation	7 Specify Ty	pe of Analyses, Numb	per of Containers	, Approx. Volume
(Name of Carrier)	1 Ex	Analyses /	Method Requested	No. of Bottles	Total Volume
(Date Shipped) 1-27	-89	E.P. To	xxxity (Metal	5) /	2 991
(Airbiil Number) 8946	036212				9
8 Sample Loca					
B-1					
		<u> </u>			·
Date: /-27-	89				
Time:					
9 Sample Desc	ription	10 Special Ha	andling (e.g. Safety Pr	ocedures/Hazard	ous)
Surface Water	⊠ Soil				© 145,41
Ground Water	☐ Solid				
Leachate	Other:	Additional comment	s: (Specify data package, rus	sh work, special detect	ion limits, etc.)
☐ Sediment					edin i 🚂 🤄 izer
11 Condition of	Samples Received	(to be complete	d by Laboratory Log-ir	· ·	e de la companya de l
Samples rece	ived intact	* No cont	einers found in co	ler plastic au	of with
Samples at 4	degrees (C)		Log-in Person's Sign		FALLS OF THE
Samples not l	eaking		Ken Al	DALL	1/28/09
Container num	nbers match as spec	ified in Item 7	7		A Committee of the committee of
Container tags	s match Chain of Cu	stody	•		
			32.0	The sale of the sale of	The state of the state of the state of

13

1 Project W.O.	. 80201	2	Sample Co	oncentration		14927	CCN ^E 243140
Project Name/Loc	ation		⊠ Low C	oncentration			243140
. Sc	P		Medium Concentration		3	Ship to:	
Carls-	tadt	5		Personnel Contact		Comp	ouchem
4 Sample Matr	rix	Semple	Γ.	H.			
Liquid	Solid		'	1. Carlin	-		
☐ Other		Phone	No. (215)	524-3500	A	tn: Na+A	an Frank
6 Shipping Info	ormation	7	Specify T	ype of Analyses, Nu	mber		, Approx. Volume
(Name of Carrier)	d Ex		Analyses /	Method Requested		No. of Bottles	Total Volume
(Date Shipped)	27-89	Ł	P Toxi	ests (Metal	5	1	2 991
(Airbill Number) \$9	46036212					·	7
8 Sample Loca	ation		·				
B-3	·		·				
	•						
Date: /-27-	-89						
Time:							
9 Sample Desc	cription	10	Special H	andling (e.g. Safety	Proce	dures/Hazard	lous)
Surface Water	Soil						
Ground Water	☐ Solid						
Leachate	Other:	Addi	tional commen	ts: (Specify data package,	, rush wo	ork, special detec	sion limits, etc.)
☐ Sediment					, .		
Condition of	Samples Received	(to b	e complete	d by Laboratory Log			
Samples rece	eived intact 💥 N	o Can	teiners f	and in cooler.	Coole	ers lined a	oith plasticeans
Samples at 4			``	Log-in Person's S			
Samples not	leaking			Kerin Os	La.	W V	28/69
Container nu	Container numbers match as specified in Item 7						
Container tag	s match Chain of Cu	stody		A company of	`÷	· _	an Walion Special Control
Cooler receiv	Cooler received with Custody Seals Intact Samples contained within plastic begs						



				<u> </u>
1 Project W.O. 80201	2 Sample Co	ncentration	14928	CCN# 243 141
Project Name/Location	Low Co	Low Concentration		243 141
SCP	☐ Medium	Concentration	3 Ship to:	
Carlstadt, NJ	5 Sampling P	ersonnel Contact	Compu	ichem
4 Sample Matrix	Sampler:			
☐ Liquid 💢 Solid	Project Manager			
☐ Other	Phone No. (215) 5	24-3500	Attn: Nath	an Frank
6 Shipping Information	7 Specify Ty	pe of Analyses, Numb	per of Containers	, Approx. Volume
(Name of Carrier) Fed Ex	Analyses / I	Method Requested	No. of Bottles	Total Volume
(Date Shipped)	EP Toxice	th (Metals) /	2 gg/
(Airbill Number) 89 460 36212				0
8 Sample Location				
B-4				
Date: 1-27-89				
Time:				
9 Sample Description	10 Special Har	ndling (e.g. Safety Pr	ocedures/Hazard	lous)
Surface Water Soil			•	
☐ Ground Water ☐ Solid	·			
Leachate Other:	Additional comments	: (Specify data package, rue	h work, special detec	ion limits, etc.)
☐ Sediment		:		
11 Condition of Samples Received	(to be completed	by Laboratory Log-ir	r)	
Samples received intact	v. containers f	ound in cooler	base and fi	
Samples at 4 degrees (C)		Log-in Person's Sign		
Samples not leaking		Va.: 01/2		1/26/00
Container numbers match as spec	affied in Item 7	-	7	
Container tags match Chain of Cu	stody		gradure of the transfer of	Complete Margine of the
Gooler received with Custody Sea	Is intact	Samples containe	d within plastic be	DS ** 5:22 *******************************



1 Project W.O.	80201	2 Sample Co	oncentration	14929	243142
Project Name/Loc		☑ Low C	oncentration	, , , ,	243142
SCP		☐ Mediu	m Concentration	3 Ship to:	
Carlstadt	<i>دلا</i> ,	5 Sampling	Personnel Contact	Comp	ouchem
4 Sample Matr	ix	Sempler:	<u>-</u> H		
Liquid .	Solid	Project Manager	Carlin		
☐ Other		Phone No. (215)	524-3500	Attn: Nati	han Frank
6 Shipping Info	ormation	7 Specify T	ype of Analyses, Numi	per of Containe	ers, Approx. Volume
(Name of Carrier)	Ex	Analyses /	Method Requested	No. of Bottles	Total Volume
(Date Shipped) 1-27		EP Tox	city (Metals) 1	2991
(Airbill Number) 894	6036212				
8 Sample Loca	tion				že.
B-5					
					• ;•
					. १ ५८ १
Date: /-27-	-89				
Time:					
9 Sample Desc	ription	10 Special H	andling (e.g. Safety Pr	ocedures/Hazi	ardous)
☐ Surface Water	Soil				
Ground Water	☐ Solid				
Leachate	☐ Other:	Additional commen	ts: (Specify data package, ru	sh work, special de	taction limits, etc.)
Sediment	·		:		
11 Condition of	Samples Received	(to be complete	d by Laboratory Log-in	L) ,	
Samples rece	vived intact	Va captiners	found in empler	oder lined, and filled	with slastic bags with soil
Samples at 4			Log-in Person's Sigr		
Samples not I	ples not leaking				
Container nur	mbers match as spec	ified in Item 7	· · ·		
Container tag	s match Chain of Cu	stody		Personal No	

1 Project W.O. 8020/	2 Sample Concentration	14930	CCNS			
Project Name/Location	Low Concentration	14330	CCN# 043143			
SCP	Medium Concentration	3 Ship to:				
Coststadt, NJ	5 Sampling Personnel Contact	Comp	uchem			
4 Sample Matrix	Sempler: F.H.					
Liquid Solid	Project Manager					
Other	Phone No. (215) 524-3500	Attn: Nath	on Fronk			
6 Shipping Information	7 Specify Type of Analyses, Num	ber of Containers	, Approx. Volume			
(Name of Carrier) Feel Ex	Analyses / Method Requested	No. of Bottles	Total Volume			
(Date Shipped) /-27-89	EP Toxicity (Metals		2 gal			
(Airbill Number) 8946036212		·	3			
8 Sample Location						
P-2						
			·			
Date: 1-27-89						
Time:						
9 Sample Description	10 Special Handling (e.g. Safety P	rocedures/Hazard	lous)			
Surface Water Soil						
☐ Ground Water ☐ Solid						
☐ Leachate ☐ Other:	Additional comments: (Specify data package, ru	sh work, special detec	tion limits, etc.)			
☐ Sediment						
11 Condition of Samples Received	i (to be completed by Laboratory Log-i	h.)	•			
Samples received intact	An Containers found in cooler	cooler fitted	- lined with			
Samples at 4 degrees (C)	Log-in Person's Sig		101			
Samples not leaking						
Container numbers match as specified in Item 7						
Container tags match Chain of C	ustody *** ********************************	- Establishment	Markey Bridge Street			
Cooler received with Custody Seels Intact Samples contained within plastic bags						



1 Project W.O. 8020 /	2 Sample Co	oncentration	14931 CN# 243144		
Project Name/Location	Low C	oncentration		243 144	
SCP	Mediu	m Concentration	3 Ship to:		
Carlstadt, NS	5 Sampling	Personnel Contact	Comp	chem	
4 Sample Matrix	Sampler:	Carlin			
☐ Liquid 💢 Solid	Project Manager /1).	Carlin			
☐ Other	Phone No. (215)	524-3500	Attn: Nath	m Frank	
6 Shipping Information	7 Specify T	pe of Analyses, Num	ber of Containers	, Approx. Volume	
(Name of Carrier) Food Ex	Analyses /	Method Requested	No. of Bottles	Total Volume	
(Date Shipped) 1-27-89	EP Tox	city (Metals)	2901	
(Airtill Number) 8946036212					
8 Sample Location				·	
P-3					
				·	
Date: 1-27-89					
Time:		••			
9 Sample Description	10 Special Ha	andling (e.g. Safety Pr	ocedures/Hazard	lous)	
☐ Surface Water Soil	·				
☐ Ground Water ☐ Solid	·			The state of the s	
☐ Leachate ☐ Other:	Additional comment	s: (Specify data package, ru	sh work, special detec	dan limits, etc.)	
☐ Sediment		42. 33			
Condition of Samples Received	(to be complete	d by Laboratory Log-is	L) 54 5 7 7 5	no de la Barbana	
Samples received intact	o containes f		pales lined a	with plastic tags	
Samples at 4 degrees (C)		Log-In Person's Sign		-2-a)t -	
Samples not leaking		Kan 04.	nu he/a		
Container numbers match as spe	cified in Item 7		10/10	1	
Container tags match Chain of C	stody	The second second second		po-min delication	



1 Project W.O.	80201	2 Sample Co	oncentration	149	32 00 14 3145	
Project Name/Loca	ation	⊠ Low C	oncentration		243143	
50		☐ Mediur	m Concentration	3 Ship t	to:	
Carlstac	et, ns	5 Sampling	Personnel Contact	Com	puchem	
4 Sample Matri		Sampler:				
Liquid	ズ Solid	Project Manager	·			
Other		Phone No. (215)	524-3500	Attn: 1	Vathan Frank	
6 Shipping Info	rmation	7 Specify Ty	ype of Analyses, Numb		ainers, Approx. Volume	
(Name of Carrier)	d Ex	Analyses /	Method Requested	No. Bott		
(Date Shipped)	27-89	EP Tox	ecty (Metals) /	2 901	
(Airbill Number) 894	16036212					
8 Sample Loca					* 1	
P-4	<i>f</i>				·	
Date: /-27-	-89					
Time:						
9 Sample Desc	ription	10 Special Ha	andling (e.g. Safety Pr	ocedures/H	lazardous)	
☐ Surface Water	Soil				*	
☐ Ground Water	☐ Solid			`		
Leachate	Other:	Additional comment	ts: (Specify data package, ru	sh work, specie	detection limits, etc.)	
☐ Sediment		·				
Condition of	Samples Received	(to be complete	d by Laboratory Log-ir	l.)		
Samples rece	ived intact 📯 /	vo Containers	found in cooler	e . o ler	- lined with plastic and filled with sa	
Samples at 4			Log-in Person's Sign			
Samples not I	eaking		Kon Olon	.	ibelos	
Container nur	nbers match as spec	ified in Item 7	- June Coass]	The second second	
Container tag	s match Chain of Cu	stody -			**	
Consider annotation with Countries Could indeed to the contries of the countries of the cou						

1 Project W.O. 8020/	2 Sample Concentration	14935	C(N# 243148	
Project Name/Location	Low Concentration	24314		
SCP	Medium Concentration	3 Ship to:		
Carlstadt, N)	5 Sampling Personnel Contact	Comput	hem	
4 Sample Matrix	Sempler: F-H.			
☐ Liquid ☐ Solid	Project Manager M. Corlin			
☐ Other	Phone No. (215) 524-3500	Attn: Na	thm Frank	
6 Shipping Information	7 Specify Type of Analyses, Num	ber of Containers	, Approx. Volume	
(Name of Cerrier) Fcol Ex	Analyses / Method Requested	No. of Bottles	Total Volume	
(Date Shipped) 1-27-85	EP Toxicity Metals	1	2901	
(Airtill Number) 8946036212			0	
Sample Location			•	
MW-65				
			5 G	
Date: 1-27-89				
Time:				
9 Sample Description	10 Special Handling (e.g. Safety P	rocedures/Hazaro	ious)	
Surface Water Soil	·		• 3	
Ground Water Solid				
☐ Leachate ☐ Other:	Additional comments: (Specify data package, ru		tion limits, etc.)	
☐ Sediment				
11 Condition of Samples Receive	d (to be completed by Laboratory Log-	n.)	STATE THE STATE OF	
Samples received intact	No containers found in cooler	1 0 0	with Plastic Sags	
Samples at 4 degrees (C)	Log-in Person's Sign			
Samples not leaking	Kevin O'Co	** **	168/89	
Container numbers match as sp			1000	
Container tags match Chain of C	Custody		and the same of the	
Godler received with Custody So	els intact Samples containe	ed within plantic be	-	



1 Project W.O.	80201	2 Sample Co	ncentration	1	4937	243149
Project Name/Loca	ation	Low C	oncentration			245111
Scp		☐ Mediur	n Concentration	3	Ship to:	
Cortstad	(N, +	5 Sampling	Personnel Contact		Compu	chem
4 Sample Matri		Sampler:	Ή.			
Liquid	Solid	Project Manager	1. Costin			
☐ Other		Maria Ma	524-3500	Attn	: Nath	n Front
6 Shipping info	rmation	7 Specify Ty	pe of Analyses, Numi	ber of	Containers	, Approx. Volume
(Name of Carrier)	d Ex	Analyses /	Method Requested		No. of Bottles	Total Volume
(Date Shipped)	27-89	EP Tox	esty Metal	(z	1	299/
(Airbill Number) 894	46036212					3
8 Sample Locat	tion					
B-5						
(Dupli	cate)		•			
Date: 1-2	7-89					
Time:		·				يمونين
9 Sample Desc	ription	10 Special Ha	andling (e.g. Safety Pr	roced	ures/Hazaro	lous)
☐ Surface Water	Soil					
Ground Water	Solid	·				·
Leachate	Other:	Additional comment	a: (Specify data package, ru	sh worl	r, special detec	tion limits, etc.)
☐ Sediment	,		•		~	1.1.€
Condition of	Samples Received	(to be complete	d by Laboratory Log-k		A	
Samples recei	ived intact 🐥 N.	containers for	nd in coder con	les l	ined with	h plastic bags the soil
Samples at 4			Log-in Person's Sign			
Samples not k	eaking		Kai Oil.) 4 4=	" Kela	,
Container nun	nbers match as spec	ified in Item 7	The Car	/		₩×.00
Container tage	s match Chain of Cu	stody			· · · · · · · · · · · · · · · · · · ·	
73	d with A mands Ass				د مود ده حکاماد ماد	The second second second

Change in Inorganic Analytical Policies (SW-846 Method 6010

CompuChem® Laboratories, Inc., is a member of EPA's Inorganic Contract Laboratory Program (CLP), which includes the assessment of twenty-three (23) metals in aqueous and non-aqueous (soil/sediment) matrices. The methodologies employed in the program are considered to be the State-of-the-Art and are subject to modifications as improvements are implemented.

Associated with the Inorganics CLP are certain Quality Control (QC) requirements which provide for the generation of analytical data of known, high quality. In an effort to be able to pass along the benefits of our involvement in the program, CompuChem® has made the decision to adopt the methodologies and reporting conventions utilized by the EPA in the CLP. Included in the policies being adopted for all metals analyses are the following:

- 1) On a quarterly basis, instrumental detection limits are experimentally determined for each Inductively Coupled Plasma (ICP) system in the laboratory.
- 2) For ICP systems, on a quarterly basis, interelement and background correction factors are determined using an Interference Check Standard. Another quarterly requirement for ICP analysis is a linear range verification determination for each element analyzed.
- 3) On a daily basis, for ICP analysis, an instrument calibration is performed using a mid-concentration standard. After this preliminary calibration, the calibration is verified for accuracy by the analysis of an Initial Calibration Verification Standard. To assure calibration accuracy during the course of analysis, a Calibration Verification Standard is analyzed at a frequency of 10% or every two hours, whichever is more frequent. Acceptance and rerun criteria, established by EPA in the CLP, for the Initial and Continuing Calibration Verification Standards will be used for all analyses.
- 4) An ICP Interference Check Standard is analyzed at a minimum of twice per shift to verify interelement and background correction factors. Acceptance and rerun criteria established by EPA in the CLP will be used for all analyses.
- 5) Other QC measures being employed for all analyses include an ICP serial dilution analysis for each group of samples analyzed.

In adopting the EPA-CLP methodologies and reporting conventions, the following points should be realized since differences in the presentation of the data will be apparent:

- 1) If the analytical result is a value equal to or greater than the instrument detection limit, but less than EPA's Contract Required Detection Limit (CRDL), the value will be reported in brackets (i.e., [8.7]).
- 2) If an element was analyzed for and not detected, the instrument detection limit value is reported with a "U" (i.e., 10U).
- Results for the analysis of water samples will be reported in units of ug/L and for solid samples, the units will be mg/kg.
- 4) The instrument detection limits (reported with a "U" if the element is not detected) necessarily will be required to be determined on a per sample basis for solid matrices, since they are dependent on the sample size taken. A 1.0 to 1.5 g sample is taken for the digestion process prior to analysis by ICP. If mercury is required, a second separate portion of the sample is taken.

For informational purposes, attached is a table presenting EPA's CRDL and CompuChem's 4th Quarter, 1988, experimentally determined instrument detection limits for ICP and AAS instrumentation (for mercury).

If clarification or any additional information is required concerning this new policy, please feel free to contact your Customer Service Representative.

Robert E. Meierer,

Director of Quality Assurance

E1ement	Water CRDL (ug/L)	Solid(1) CRDL (mg/kg)	Instrument Detection Limit (ug/L) Jarrell Ash 1100 ICP
Aluminum	200	20	25
Antimony	60	6	43
Arsenic (2)	10	ĭ	48
Barium	200	20	0.85
Beryllium	5	0.5	1.1
Cadmium	5	0.5	4.3
Calcium	5000	500	9.3
Chromium	10	1	5.0
Cobalt	50	5	2.5
Copper	25	2.5	3.1
Iron	100	10	3.6
Lead (2)	5	0.5	39
Magnesium	5000	500	133
Manganese	15	1.5	1.7
Mercury	0.2	0.2	0.11 (3)
Nickel	40	4	24
Potassium	5000	500	2360
Selenium (2)	5	0.5	67
Silver	10	1	4.3
Sodium	5000	500	1890
Thallium (2)	10	1	97
Vanadium	50		2.3
Zinc	20	5 2	2.6

- Notes: (1) based on a nominal size of 1.0 g of solid sample, in a final volume of 100 ml (after digestion).
 - (2) These elements typically are determined by Furnace (F) AAS. The "CRDL" presented for these four (4) elements are actually "Limits of Quantitation" (LOQ) which were experimentally determined in our lab following guidelines established in "Principles of Environmental Analysis," ACS's Committee on Environmental Improvement, Analytical Chemistry, 55 (1983), 2210-2218.
 - (3) Determined by cold vapor AAS.



February 15, 1989

Ms. Susan Barry ERM, Inc. 855 Springdale Drive Exton, PA 19341

Dear Ms. Barry:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID	Number	Analysis	Order	Description of Work
Number		Code	Number	Requested
14934				E.P. Toxicity Leachate RCRA/SDWA Metals

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

RECEIVED

Mary E. Mitchell
Supervisor, Report Deliverables

FEB 20 1989

E.R.M

cc: Accounting
 (Cover letter only)

6



ANALYTICAL REPORT OF DATA SUBMITTED TO:

Ms. Susan Barry ERM, Inc. 855 Springdale Drive Exton, PA 19341

CHRONICLE

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE E.P. TOXICITY LEACHATE PERFORMED	DATE RCRA/SDWA METALS ANALYZED
1.	14934	243147	01/30/89	02/02/89	02/05/89

QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: COMPUCHEM® SAMPLE NUMBER:

14934 243147

RCRA/SDWA METALS

•	NUMBER	ACCEPTANCE CRITERIA
Blank	243689	OK
Blank Spike	243150	OK
Duplicate	243151	OK

1 Project W.O. 8020/	2 Sample Concentration	n ·	14934	CN# 243147				
Project Name/Location	Low Concentration	oncentration 243						
ScP	Medium Concentr	ation 3	Ship to:					
Catlstadt, NJ	5 Sampling Personnel	Contact	Compu	chem				
4 Sample Matrix	Sempler: F. H.							
☐ Liquid 💢 Solid	Project Manager M. Carl	n						
Other	Phone No. (215) 524-3500	Attr	n: Natha	n Frank				
6 Shipping Information	7 Specify Type of Ana	lyses, Number o	f Containers,	Approx. Volume				
(Name of Cerrier) Fool Ex	Analyses / Method Re	quested	No. of Bottles	Total Volume				
(Date Shipped) 1-27-89	EP Toxxity (Metals)	1	2901				
(Airbill Number) 8946036212				<u> </u>				
8 Sample Location				·				
MW-35			·					
		,	:					
Date: /-27-89								
Time:								
9 Sample Description	10 Special Handling (e.g. Safety Procedures/Hazardous)							
Surface Water Soil								
☐ Ground Water ☐ Solid								
Leachate Other:	Additional comments: (Specify de	ta package, rush wor	k, special detect	ion limits, etc.)				
☐ Sediment	☐ Sediment							
Condition of Samples Received (to be completed by Laboratory Log-in.)								
Samples received intact * No containers found in cooler sags and filled with soil								
Samples at 4 degrees (C)	Log-in Po	rson's Signatur						
Samples not leaking	Koni	Oleman.	4	8/09				
Container numbers match as spec	Container numbers match as specified in Item 7							
Container tags match Chain of Cu	stody	Andrew Constant						
Cooler received with Custody Seals intact Samples contained within plastic bags								

Has. They yard compared by Joseph C. That may a No. 18.



Sample Chain of Cust

	000													Sample Onam of Ous
W.D.No.:	80201		Proje	ct Name	SCP						٤/	77	//	Received in good Condition K.O. 128
Sampler:			•					Num	ber	0	/ /	/ /		/ Condition K.O. Ye
ERM Sample Number	Date	Time	C O M P	G R A B	Samp	le Location		Contai	iners/					C(NHS Remarks
14925	11-27-69	1700		V	B.	-/		1	1					243138
14126	/1	11		V	ß-	· 2		1	1					243139
14927	,,	1)		V	B	-3		1	1					943140
14928	/1	••		V	B	~4		1	1					243141
14929	,,	11		V	B-	.5		1	1					243142
14930	1)	11		V	<i>f</i> ₂	·P-2		1	1				-	243143
14931	17	'1		V		2-3		1	1					243144
14932	11	91		1	-	0-4		1	,					243145
14433	n ,	4		1	Mu	1-5D		1	1					243146
14134	11	•		V	Mu	/-35		1	1					243147
Sample	e Relinqu	ished	ı	Date	Time	Sample Re	eceived	by:		Date	1	ime	·	Reason for Transfer
Ea	I Sull	'n	1-:	27- 6 7	2000	Kevin C)/lea	lle	1/28	pe	0	850		
									-				A res	Samples were physical construction of the cons

COPIES: White & Yellow copies accompany sample shipment to laboratory. Yellow copy retained by laboratory. White copy to be returned to ERM for files. Pink copy retained by sampler. Gold copy extra copy as needed (waret

A 40 4 ...



February 15, 1989

Ms. Susan Barry ERM, Inc. 855 Springdale Drive Exton, PA 19341

Dear Ms. Barry:

We at CompuChem® are pleased to provide our report for the analysis you requested. Data for the following sample are enclosed:

Your ID	Our ID	Analysis	Order	Description of Work
Number	Number	Code	Number	Requested
14924 14926	243137 243139	045,642	16110	E.P. Toxicity Leachate RCRA/SDWA Metals

To obtain additional technical information concerning this report, please contact your Sales Representative. In addition to resolving your questions, they can provide you with a complete overview of our line of services and assist you in identifying those services which will effectively and efficiently support your monitoring program.

For your convenience, your Customer Service Representative can help you place a new order, obtain information about a sample's status or obtain assistance with sample logistics. Your Sales Representative and your Customer Service Representative can be reached at 1/919-549-8263.

Thank you for choosing CompuChem®. We would like to continue providing you analytical support and services. We would appreciate your comments regarding the quality of services you have received from CompuChem®; client satisfaction is important to us. Please address your comments to your Sales or Customer Service Representative at the address given below.

Sincerely,

D. Byd

RECEIVED

Mary E. Mitchell
Supervisor, Report Deliverables

FEB 20 1989

cc: Accounting

(Cover letter only)

<u>e</u>rm



ANALYTICAL REPORT OF DATA SUBMITTED TO:

Ms. Susan Barry ERM, Inc. 855 Springdale Drive Exton, PA 19341

CHRONICLE

ITEM	SAMPLE IDENTIFIER	COMPUCHEM® NUMBER	DATE SAMPLE RECEIVED	DATE E.P. TOXICITY LEACHATE PERFORMED	DATE RCRA/SDWA METALS ANALYZED
1.	14924	243137	01/30/89	02/01/89	02/05/89
2.	14926	243139	01/30/89	02/01/89	02/05/89

Date Completed: 2/ 7/89

CompuChem#: 243137

Water XXX Solids

SAMPLE ID: 14924

CompuChem Compound #	Compound Name	Result (circle one) (ug/l) mg/kg
0118	Aluminum, total()	
0101	Antimony, total()	
0102	Arsenic, total(F)	2.4U
0114	Barium, total(P)	[29]
0103	Beryllium, total()	
0129	Calcium, total()	
0104	Cadmium, total(P)	4.00
0120	Cobalt, total()	
0105	Chromium, total(P)	[7.9]
0106	Copper, total()	
0115	Iron, total()	
0107	Lead, total(F)	6.6
0121	Magnesium, total()	
0116	Manganese, total()	
0109	Nickel, total()	
0131	Potassium, total()	
0110	Selenium, total(F)	7.00
0111	Silver, total(P)	5.50
0130	Sodium, total()	
0112	Thallium, total()	
0117	Vanadium, total()	
0113	Zinc, total()	
0108	Mercury, total(CV)	0.200

P = Inductively Coupled Plasma (Method 6010)

A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)

F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)

CV= Cold Vapor (Method 7471)

U = Compound was analyzed for but not detected. Total reported
 is the Instrument Detection Limit

^{[] =} Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

Date Completed: 2/ 7/89

Water XXX Solids

SAMPLE ID: 14926

CompuChem#: 243139

0118 Aluminum,total	⁄kg	Result (circle (ug/l) mg/kg	Compound Name	CompuChem Compound #
0102 Arsenic,total			Aluminum, total(0118
0114 Barium, total		· · · · · · · · · · · · · · · · · · ·	Antimony, total(0101
0103 Beryllium,total	12	12		0102
0129 Calcium,total	371	371		0114
0104 Cadmium, total				0103
0120 Cobalt,total				0129
0105 Chromium, total	29	29		
0106 Copper,total			Cobalt, total(0120
0115 Iron,total	211	211	Chromium, total(P	0105
0107 Lead, total			Copper,total(0106
0121 Magnesium, total() 0116 Manganese, total() 0109 Nickel, total() 0131 Potassium, total(F) 0110 Selenium, total(F) 0111 Silver, total(P) 0130 Sodium, total() 0112 Thallium, total() 0117 Vanadium, total()				0115
0116 Manganese, total	150	1150	Lead, total(P	0107
0109 Nickel, total				•
0131 Potassium, total() 0110 Selenium, total(F) 7.00 0111 Silver, total(P) 5.50 0130 Sodium, total() 0 0112 Thallium, total() 0 0117 Vanadium, total() 0				
0110 Selenium, total(F) 7.00 0111 Silver, total(P) 5.50 0130 Sodium, total() 0112 Thallium, total() 0117 Vanadium, total()				
0111 Silver, total(P) 5.5U 0130 Sodium, total() 0112 Thallium, total() Vanadium, total()				- · ·
0130 Sodium, total() 0112 Thallium, total() 0117 Vanadium, total()				
0112 Thallium, total() 0117 Vanadium, total()	5.5U	5.5U		
0117 Vanadium, total()				0130
				0112
0113 Zinc, total()			Vanadium, total(0117
			Zinc, total(0113
0108 Mercury, total(CV) 8.0				

P = Inductively Coupled Plasma (Method 6010)

A = Flame-Atomic Absorption Spectrometer (7000 Series Methods)

F = Furnace-Atomic Absorption Spectrometer (7000 Series Methods)

CV= Cold Vapor (Method 7471)

U = Compound was analyzed for but not detected. Total reported is the Instrument Detection Limit

^{[] =} Total is greater than Instrument Detection Limit but less than EPA Required Detection Limit

QUALITY CONTROL SUMMARY

RCRA/SDWA METALS

	NUMBER	ACCEPTANCE CRITERIA
Blank	243689	OK
Blank Spike	243150	OK
Duplicate	243151	OK OK

ASSOCIATED SAMPLES

SAMPLE IDENTIFIERS	COMPUCHEM NUMBERS
14924	243137
14926	243139

1 Project W.O. 8020	2 Sample Concentration	14924	CCN# 243137						
Project Name/Location			243137						
ScP	☐ Medium Concentration	3 Ship to:	Ship to:						
carlstadt, ND	5 Sampling Personnel Contact	Compuchen							
4 Sample Matrix	Sampler: F.H.								
☐ Liquid ☐ Solid	Project Manager M. Costin								
☐ Other	Phone No. (215) 524-3500	N-1							
6 Shipping Information	7 Specify Type of Analyses, Num	ber of Containers	, Approx. Volume						
(Name of Carrier) Fod Ex	Analyses / Method Requested	No. of Bottles	Total Volume						
(Date Shipped) /-27-89	Priority Pollutent								
(Airbill Number) 89,4603612	Volatile Organic Compo	unds 1	14.						
8 Sample Location									
B-6	Sample to be aralysid								
	per David blue at								
	ber David blue at	_	· · · · · · · · · · · · · · · · · · ·						
Date: 1-27-89	Elm m 1/30/69 KW 1/30/69								
Time:	1/ Ku/	30/64							
9 Sample Description	10 Special Handling (e.g. Safety Procedures/Hazardous)								
Surface Water Soil		**************************************							
Ground Water Solid									
Leachate Other:	Additional comments: (Specify data package, ru	sh work, special detect	ion limits, etc.)						
☐ Sediment									
Condition of Samples Received (to be completed by Laboratory Log-in.)									
Samples received intact No container found in cooler lined with the									
Samples at 4 degrees (C) Log-in Person's Signature									
Samples not leaking	K (%).	ale 1/	Hea						
Container numbers match as spec	ified in Item 7	1)	T. S. Service						
Container tags match Chain of Cu	stody	ort Designed to the second of							
M 0-1 1-1 1-0 -1-10			The state of the state of						

1 Project W.O.	80201	2 Sample Co	oncentration ·	14926	C(NE 243139				
Project Name/Loc	ation	X Low €	oncentration		243139				
SCP		☐ Mediu	m Concentration	3 Ship to:					
Carlsto	Pt, NJ	5 Sampling	Personnel Contact	Com	ouchem				
4 Sample Matr	ix	Sempler:	=H						
Liquid	Solid	Project Manager //	1. Carlin						
☐ Other		Phone No. (215)	524-3500	Attn: Na+H	Nathan Frank				
6 Shipping Infe	ormation	7 Specify T	ype of Analyses, Num	ber of Containers	, Approx. Volume				
(Name of Carrier) Fcc	I Ex	Analyses /	Method Requested	No. of Bottles	Total Volume				
(Date Shipped) /-27	1-89	EP Toxic	ity For (Meta)	4) 1	2 gal				
/Airhill Ahambool	46036212				<u> </u>				
8 Sample Loca	ation								
B-2									
			•						
Date: 1-27-	89								
Time:		·			. •				
9 Sample Dese	cription	10 Special Handling (e.g. Safety Procedures/Hazardous)							
☐ Surface Water	Soil								
☐ Ground Water	Solid								
Leachate	Other:	Additional comments: (Specify data package, rush work, special detection limits, etc.)							
☐ Sediment					- 				
Condition of Samples Received (to be completed by Laboratory Log-in.)									
Samples received intact X No containers found in cooler bees and filled with soil									
Samples at 4			Log-in Person's Signature						
Samples not	leaking		Kevin Oil	laca 1	68/89				
Container nu	mbers match as spec) '	478					
Container tag	gs match Chain of Cu	stody		e de la fina de la grapa de la composição					
Cooler receiv	red with Custody Sea	is intact	Samples contain	ed within plastic be	QS				

004305



Sample Chain of Custog

W.O.No.:	*	,	Proje	ct Name	ScP]		7.	4/	/ /	7	
Sampler:		. , F.	₩. 		<u> </u>		Nun	nber	\\g				Received in good condition K 1/2/24
ERM Sample Number	Date	Time	C O M P	G R A B	Samp	ile Location	Conta	iners/	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	/. /	//	//	Remarks CCLES
14935	,,	r		V	M	w-65	1	1					243148
14937	"	,,		1		Duplicate.	1	1					243149
14924	11	*		V		-6	1	1			ļ		243137
	gggggggggggggggggggggggggggggggggggggg							.					· · · · · · · · · · · · · · · · · · ·
			ļ					_					
			ļ		· · · · · · · · · · · · · · · · · · ·					_			
											<u> </u>	 	
Sample	Relinqu	uished		Date	Time	Sample Receive	d by:		Date	Tir	ne		Reason for Transfer
	Selle		1.2	27-89	20 00	Kevin O'Ken		┥; -	1/19	085			
,						190-2-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-						A	Samples were physialle eived in 1/20/09 but not
												rec	cuico na computer until cuico na computer until cuico na kartery die neof quest backdafing Kwi/si
 			-		 	;		-				1/3	yes. Was kettery did nest
· · · · · · · · · · · · · · · · · · ·	······································		-					1				10	quest achairing Kwiki

COPIES: White & Yellow copies accompany sample shipment to taboratory. Yellow copy retained by laboratory. White copy to be returned to ERM for files. Pink copy retained by sampler. Gold copy extra copy as needed (warehou

- 前記機・後年に1番のよう転送し、「「食」」「なって」」「「「食」」



W.D.No.:	20201	<u>-</u>	Proje	d Name:	SCP				Z	5//	7 /	Sample Chain of Cust	
W.O.No.: 80201 Project Name: SCP Sampler: S.A., F.H.						Num	Number 00				Condition K.O. Kee		
ERM Sample Number	Date	Time	C O M	G R A B	Samp	le Location	Conta	iners/				Received in good Condition K.O. 125%. (Note: Remarks)	
4925	11-27-89	1700		V	B	-/	1	1				243138	
y126	/1	,,		V	ß-	2	1	1				243139	
1127	11	'1		1	B	.3	1	1				.943140	
14928	71	••		V	B	-4	,	1				243141	
4929	,,	11		V	B-	.5	1	1				243142	
14930	"	11		V	B	.P-2	1	1				243143	
14931	1,	٠,		V	F	-3	1	1				243144	
14932	1)	11		V		0-4	1	1				243145	
4433	h	h		V	Mu	1-5D	1	1				243146	
14134	71	,		V	Mu	/-35	1	1				243147	
Sample	e Relinqu	ished	l	Date	Time	Sample Receive	ed by:		Date	Tim	P)	Reason for Transfer	
Ed	Bull	in _	1-:	27 -87	2000	Kevin O'ne	Lary_	1/28	89	085			
												Samples were physic	
						•					re	reived on 1/26/09,	
								<u> </u>				ceived on 1/26/09, lot received on constitution, still , so for, therefore, t request backdafing KW 11.	
				·							_ 0	ntill , 80/09, Cheen for	
·											ne	of request backdaters	
												Kw 11.	

COPIES White & Yellow copies accompany sample shipment to laboratory. Yellow copy retained by laboratory. White copy to be returned to ERM for files. Pink copy retained by sampler. Gold copy extra copy as needed (waret

Change in Inorganic Analytical Policies (SW-846 Method 6010

CompuChem® Laboratories, Inc., is a member of EPA's Inorganic Contract Laboratory Program (CLP), which includes the assessment of twenty-three (23) metals in aqueous and non-aqueous (soil/sediment) matrices. The methodologies employed in the program are considered to be the State-of-the-Art and are subject to modifications as improvements are implemented.

Associated with the Inorganics CLP are certain Quality Control (QC) requirements which provide for the generation of analytical data of known, high quality. In an effort to be able to pass along the benefits of our involvement in the program, CompuChem® has made the decision to adopt the methodologies and reporting conventions utilized by the EPA in the CLP. Included in the policies being adopted for all metals analyses are the following:

- 1) On a quarterly basis, instrumental detection limits are experimentally determined for each Inductively Coupled Plasma (ICP) system in the laboratory.
- 2) For ICP systems, on a quarterly basis, interelement and background correction factors are determined using an Interference Check Standard. Another quarterly requirement for ICP analysis is a linear range verification determination for each element analyzed.
- 3) On a daily basis, for ICP analysis, an instrument calibration is performed using a mid-concentration standard. After this preliminary calibration, the calibration is verified for accuracy by the analysis of an Initial Calibration Verification Standard. To assure calibration accuracy during the course of analysis, a Calibration Verification Standard is analyzed at a frequency of 10% or every two hours, whichever is more frequent. Acceptance and rerun criteria, established by EPA in the CLP, for the Initial and Continuing Calibration Verification Standards will be used for all analyses.
- 4) An ICP Interference Check Standard is analyzed at a minimum of twice per shift to verify interelement and background correction factors. Acceptance and rerun criteria established by EPA in the CLP will be used for all analyses.
- 5) Other QC measures being employed for all analyses include an ICP serial dilution analysis for each group of samples analyzed.

In adopting the EPA-CLP methodologies and reporting conventions, the following points should be realized since differences in the presentation of the data will be apparent:

- 1) If the analytical result is a value equal to or greater than the instrument detection limit, but less than EPA's Contract Required Detection Limit (CRDL), the value will be reported in brackets (i.e., [8.7]).
- 2) If an element was analyzed for and not detected, the instrument detection limit value is reported with a "U" (i.e., 10U).
- Results for the analysis of water samples will be reported in units of ug/L and for solid samples, the units will be mg/kg.
- 4) The instrument detection limits (reported with a "U" if the element is not detected) necessarily will be required to be determined on a per sample basis for solid matrices, since they are dependent on the sample size taken. A 1.0 to 1.5 g sample is taken for the digestion process prior to analysis by ICP. If mercury is required, a second separate portion of the sample is taken.

For informational purposes, attached is a table presenting EPA's CRDL and CompuChem's 4th Quarter, 1988, experimentally determined instrument detection limits for ICP and AAS instrumentation (for mercury).

If clarification or any additional information is required concerning this new policy, please feel free to contact your Customer Service Representative.

Robert E. Meierer,

Director of Quality Assurance

Element	Water CRDL (ug/L)	Solid(1) CRDL (mg/kg)	Instrument Detection Limit (ug/L) Jarrell Ash 1100 ICP
A1 um1 num	200	20	25
Antimony	60	6	43
Arsenic (2)	10	ī	48
Barium	200	20	0.85
Beryllium	5	0.5	1.1
Cadmium	5	0.5	4.3
Calcium	5000	500	9.3
Chromium	10	1	5.0
Cobalt	50	5	2.5
Copper	25	2.5	3.1
Iron	100	10	3.6
Lead (2)	5	0.5	39
Magnesium	5000	500	133
Manganese	15	1.5	1.7
Mercury	0.2	0.2	0.11 (3)
Nickel	40	4	24
Potassium	5000	500	2360
Selenium (2)	5	0.5	67
Silver	10	1	4.3
Sodium	5000	500	1890
Thallium (2)	10	1	97
Vanadium	50		2.3
Zinc	20	5 2	2.6

- Notes: (1) based on a nominal size of 1.0 g of solid sample, in a final volume of 100 ml (after digestion).
 - (2) These elements typically are determined by Furnace (F) AAS. The "CRDL" presented for these four (4) elements are actually "Limits of Quantitation" (LOQ) which were experimentally determined in our lab following guidelines established in "Principles of Environmental Analysis." ACS's Committee on Environmental Improvement, Analytical Chemistry, 55 (1983), 2210-2218.
 - (3) Determined by cold vapor AAS.